

Sub A1

Abstract of the Disclosure

A digital signal receiver and a method for receiving a digital signal are provided. The digital signal receiver includes an equalizing unit which operates by a self-recovering equalization algorithm in an initial stage and by a decision directed equalization algorithm after a predetermined time has lapsed, for compensating for an amplitude distortion of a received signal, an original signal decision unit for deciding an original signal from a signal which is compensated for the amplitude distortion, a carrier recovering and phase lock detecting unit which operates after the predetermined time has lapsed, for detecting a phase error between an input of the original signal decision unit and the decided original signal, and outputting a phase lock signal when the phase is captured by the phase error, a re-rotating unit for restoring the signal from the original signal decision unit to its original state by the phase compensated by the carrier recovering and phase lock detecting unit and outputting a restored signal to the equalizer, and a coefficients updating unit for receiving the phase lock signal from the carrier recovering and phase lock detecting unit and the restored signal from the re-rotator unit, generating an error for updating the coefficients of the equalizer, and updating the coefficients of the equalizer. It is possible to realize an equalizer which has excellent remaining error performance and operate stably under poor channel conditions without

the help of a training sequence, to quickly capture the frequency offset,
and to obtain a small remaining error in a stable state.

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